What is Google Glass all about?

Google Glass is a wearable device which allows the user to access their phone, email, GPS, internet, take pictures or videos and other features yet to be designed. It is navigated by voice or simple touch patterns on the side of the device. The menu is projected via a display from the Glass as if it were viewing a 42 in TV about 6-8 feet in front of you.

How is Shriners Hospitals for Children (SHC) – Portland using Glass?

The SHC-P assistive technology team implemented a new Google Glass program August 2013 which provides the opportunity for children with disabilities to trial this innovative technology and give feedback regarding its functionality and usefulness to developers. The information obtained from the 15 children through interview and survey was reported back to Google to provide insight into how they can improve their product to better serve children and adults with motor impairments. Since Google Glass is “application (app) driven”, similar to a smart phone or tablet device, the Shriners assistive technology team is in process of working with app developers to create apps for individuals with upper extremity limitations as well as to create customized apps to meet an individual’s personal wants/needs. The voice activated feature is helpful for children with neuromuscular disease who are unable to access their world conventionally. Google Glass has the potential to revolutionize the way many individuals with motor impairments access their world. We are exploring how these ideas and apps may increase the quality of life in the children we see.

Impact of Glass in the medical field across the country: Many medical practitioners across the country are in process of developing their own purpose for Glass. Some researchers have discovered the pro-social impact that wearable technology may have as they look at using this technology to measure attention and behavior1. There has recently been a surge of interest for use of Glass in the emergency room to access critical medical information more quickly. A telemedicine application for emergency providers is being tested with dermatologists at a hospital in Rhode Island. The hope seems to be that Glass could be used to help provide remote care in an effort to decrease the need for further readmissions2. An exploratory study of Glass was performed in a University Children’s Hospital in pediatric surgery. They used Glass for a month and reported it was well received and beneficial for hands-free photo/video documentation, phone calls, looking up billing codes and internet searches for unfamiliar medical terms/syndromes3.

More research regarding using Glass for alternate access methods is needed to better track its ability and potential to help children and adults alike become more independent in accessing their world via electronics. According to our case study, it appears training and follow up to help the user learn how to use Glass functionally is very important to increase their likelihood of using the device regularly and with efficacy.

Case Study: A local youth was able to obtain Glass this past May 2014. He is a 16 y/o boy with a diagnosis of Duchenne’s Muscular Dystrophy which is a progressive neuromuscular disease causing muscle weakness. He reported originally that his hope was to use Glass in order to independently:
- take notes
- take videos/pics
- check email
- text message
- record lectures

The Psichosocial Impact of Assistive Devices Scale (PIADS)4 is a 26-item self-report used to help us gather information on how he felt obtaining Google Glass was affecting his functional independence, well-being, and quality of life. This assessment is divided into three subscales: 1) competence 2) adaptability 3) self-esteem which are scored using a Likert system (-3 to +3). He scored himself: 1)1.17 2)1.67 3)1.13 respectively in these areas after having Glass for two months. After given “Glass homework” assignment he scored himself higher (1.92) in competence and (1.5) in self-esteem.

Benefits:
- Increases his independence in taking videos & pictures
- Comfortable and compact
- Allows portability and easy access for his electronics
- “more connected” via email and social media
- Increases his competence in exploring new technology

Barriers:
- new technology often means there is not yet a robust group to provide support
- 1 day battery life (shorter with excess video)
- Social participation (he reported he was sometimes not attending conversations etc)

Other alternate access methods for Glass considered by the AT team:
1) Alternate classroom experience: wherein a student uses “google hangout” to virtually attend a class.
2) Hands free word processing: reminders, notes and short essays
3) Environment Control Unit (ECU): ECU app can be used to control electronics, lights or doors via WeMo or other home automation products (currently WiFi driven).
4) Operating a powered wheelchair: it may be possible to use head tilt, eye blink or voice commands to initiate a powered wheelchair.
5) Real time language interpretation
6) Real time virtual adventures and accessible geo-caching
7) For the Blind (via Dapper Vision):4
   A) Memento app: recognizes scenes and provides info accordingly with previously downloaded content
   B) “OpenGlass Project”: allows user identify in real time what they see in front of them via twitter and mechanical turk (objects, places, people etc)

References:

Google Glass: An Alternate Access Solution
Deneé Kroeger, MOTR/L
Shriners Hospitals for Children - Portland